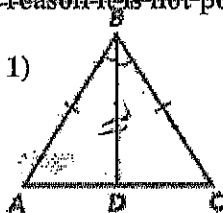


Geometry
Worksheet - Congruent Triangles

NAME Key

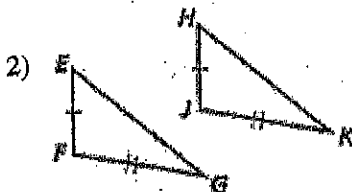
Date _____ HR _____

- a) Determine whether the following triangles are congruent.
b) If they are, name the triangle congruence (pay attention to proper correspondence when naming the triangles) and then identify the Theorem or Postulate (SSS, SAS, ASA, AAS, HL) that supports your conclusion.
c) Be sure to show any additional congruence markings you used in your reasoning.
d) If the triangles cannot be proven congruent, state "not possible." Then give the reason it is not possible.



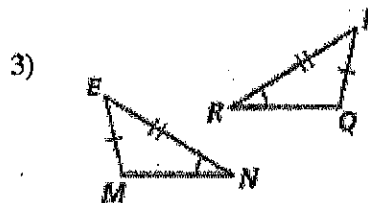
Congruence: SAS
 $\triangle ABD \cong \triangle CBD$

Reason:



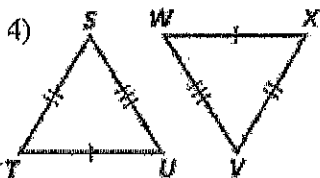
Congruence: Not P
 $\triangle EFG \cong \triangle HJK$

Reason: Only 2 sides



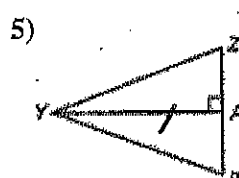
Congruence: Not P
 $\triangle EMN \cong \triangle RQP$

Reason: No SSA



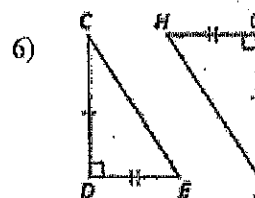
Congruence: SSS
 $\triangle STU \cong \triangle VWX$

Reason:



Congruence: Not P
 $\triangle YZA \cong \triangle YAB$

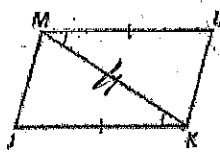
Reason: Need one more thing



Congruence: SAS
 $\triangle CDE \cong \triangle FGH$

Reason:

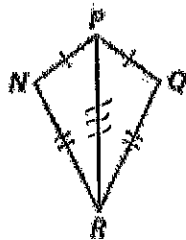
7)

Congruence: SAS

$$\triangle KJM \cong \triangle MLK$$

Reason:

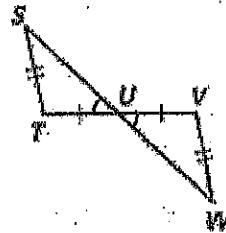
8)

Congruence: SSS

$$\triangle NPR \cong \triangle QPR$$

Reason:

9)

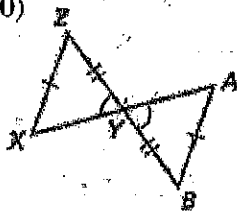


Congruence:

$$\triangle STU \cong \triangle \text{Not P}$$

Reason: No SSA

10)

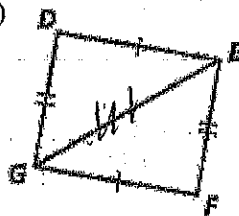


Congruence:

$$\triangle XYZ \cong \triangle \text{Not P}$$

Reason: No SSA

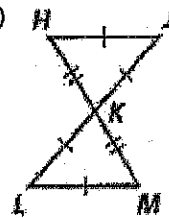
11)

Congruence: SSS

$$\triangle DEG \cong \triangle FGE$$

Reason:

12)

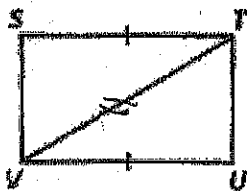
Congruence: SSS

$$\triangle HJK \cong \triangle MLK \text{ or } KLM$$

Reason:

Also could
add \angle s DAAM
SAS or ASA

13)



Congruence:

$$\triangle STV \cong \triangle \text{Not P}$$

Reason:

only 2 side

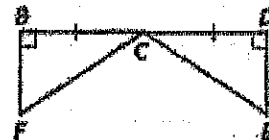
14)

Congruence: HL

$$\triangle WXY \cong \triangle AZY$$

Reason:

15)

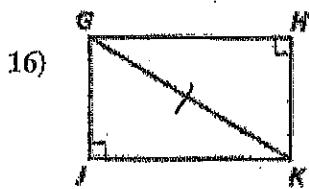


Congruence:

$$\triangle BCF \cong \triangle \text{Not P}$$

Reason:

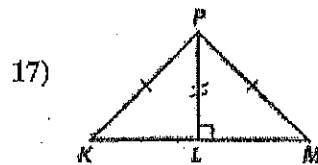
Not enough info



Congruence:

$\triangle GJK \cong \triangle$ Not P

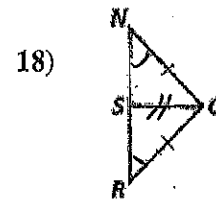
Reason:



Congruence: HL

$\triangle KLP \cong \triangle$ MLP

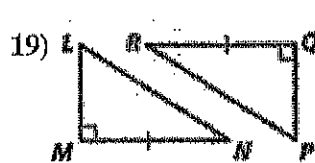
or could add angles
Reason: I. \triangle thm
(AAS)



Congruence:

$\triangle NSQ \cong \triangle$ Not P

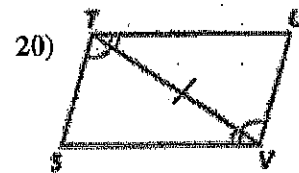
Reason:



Congruence:

$\triangle LMN \cong \triangle$ Not P

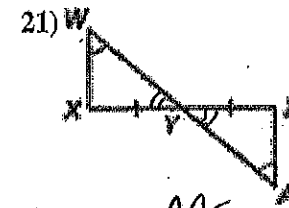
Reason:



Congruence: ASA

$\triangle STV \cong \triangle$ UVT

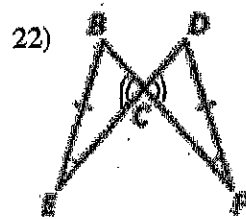
Reason:



Congruence: AAS

$\triangle WXY \cong \triangle$ AZY

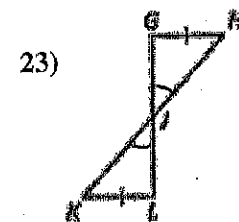
Reason:



Congruence: AAS

$\triangle BCE \cong \triangle$ DCF

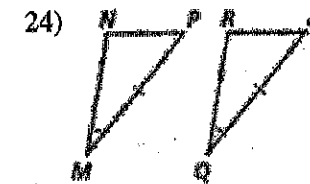
Reason:



Congruence:

$\triangle GHJ \cong \triangle$ Not P

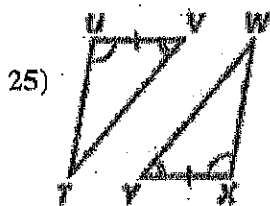
Reason:



Congruence:

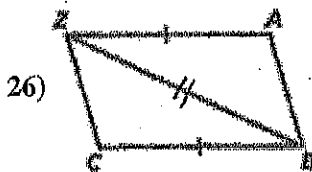
$\triangle NPM \cong \triangle$ Not P

Reason:



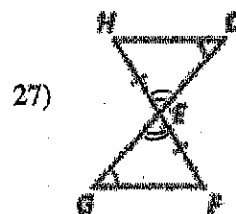
Congruence: ASA
 $\triangle TUV \cong \triangle WXY$

Reason:



Congruence: Not P
 $\triangle ABC \cong \triangle ZCB$

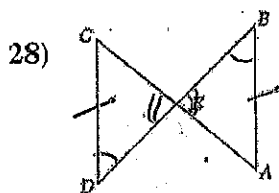
Reason:



Congruence: AAS
 $\triangle EFG \cong \triangle EHD$

Reason:

Use the given information to mark the diagram appropriately. Name the triangle congruence (pay attention to proper correspondence when naming the triangles) and then identify the Theorem or Postulate (SSS, SAS, ASA, AAS, HL) that would be used to prove the triangles congruent. If the triangles cannot be proven congruent, state "not possible."



Given: $\overline{CD} \cong \overline{AB}$; $\angle B \cong \angle D$

Congruence: AAS
 $\triangle CDE \cong \triangle ABE$

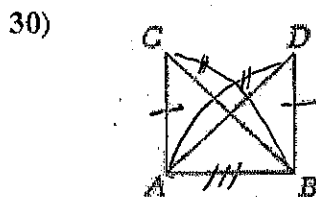
Reason:



Given: $\overline{JN} \cong \overline{LM}$; $\overline{NK} \cong \overline{MK}$;
 $\angle N \cong \angle M$

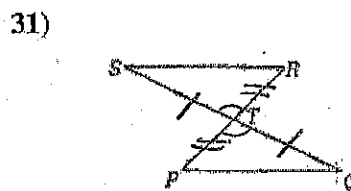
Congruence: SAS
 $\triangle JKN \cong \triangle LKM$

Reason:



Given: $\overline{AC} \cong \overline{BD}$; $\overline{AD} \cong \overline{BC}$

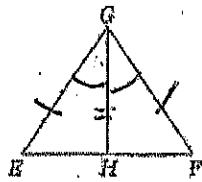
Congruence: SSS
 $\triangle ABC \cong \triangle BAD$
Reason:



Given: \overline{SQ} and \overline{PR} bisect each other

Congruence: SAS
 $\triangle RST \cong \triangle PQT$
Reason:

32)



Given: \overline{GH} bisects $\angle EGF$;
 $\overline{EG} \cong \overline{FG}$

SAS
 Congruence: $\triangle EGH \cong \triangle FGH$

Reason: If use \perp thm
 ASA or AAS

Now choose one of the problems from 28-32 and create a flow-chart proof. Then transform your flow chart proof into a 2 column proof. Your "given" will be the "Given" from the problem and your "prove" will be the "Congruence" statement you created.

Write a 2 column proof for #s 31 + 32

31.

32.

| S. | R. |
|--|-------------------------|
| ① $\overline{SQ} + \overline{PR}$ bisect each other | ① Given |
| ② $\overline{ST} \cong \overline{QT}$ $\overline{PT} \cong \overline{RT}$ | ② def of segm. bisector |
| ③ $\angle STR \cong \angle QTP$ | ③ Vert $\angle s \cong$ |
| ④ $\triangle RST \cong \triangle PQT$ | ④ SAS |

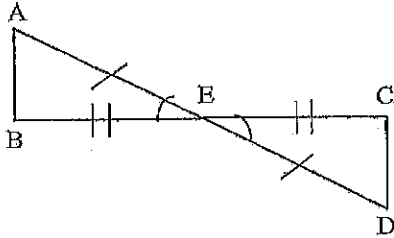
| S. | R. |
|---|-----------------------|
| ① \overline{GH} bis $\angle EGF$ $\overline{EG} \cong \overline{FG}$ | ① Given |
| ② $\angle EGH \cong \angle FGH$ | ② def of \angle bis |
| ③ $\overline{GH} \cong \overline{GH}$ | ③ Reflexive |
| ④ $\triangle EGH \cong \triangle FGH$ | ④ SAS |

Triangle Congruence Worksheet #2

I. For each pair of triangles, tell which postulate, if any, can be used to prove the triangles congruent.

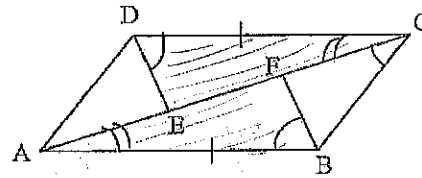
1. $\triangle AEB \cong \triangle DEC$

SAS



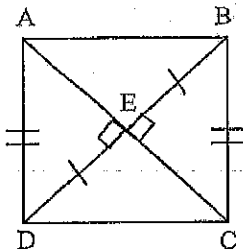
2. $\triangle CDE \cong \triangle ABF$

ASA



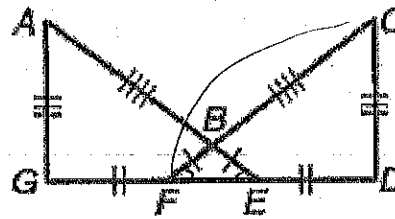
3. $\triangle DEA \cong \triangle BEC$

HL



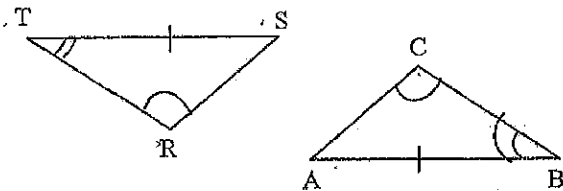
4. $\triangle AGE \cong \triangle CDF$

SSS



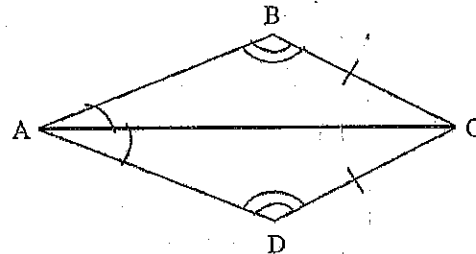
5. $\triangle RTS \cong \triangle CBA$

AAS



6. $\triangle ABC \cong \triangle ADC$

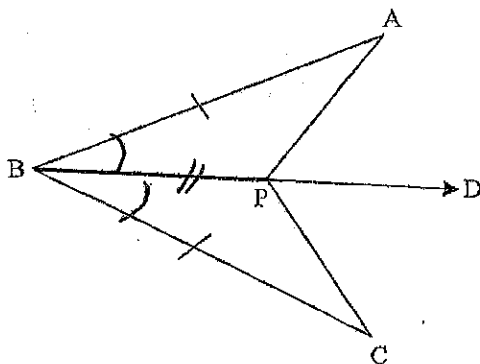
AAS



7. $\triangle BAP \cong \triangle BCP$

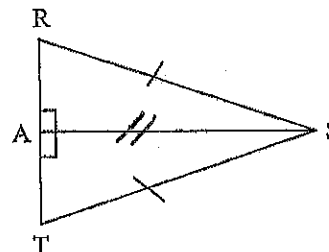
SAS

Given: \overrightarrow{BD} bisects $\angle ABC$

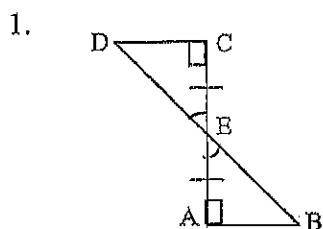


8. $\triangle SAT \cong \triangle SAR$

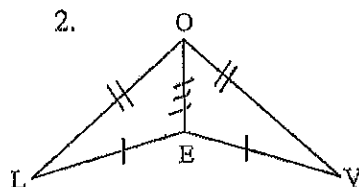
HL



II. For each pair of triangles, tell: (a) Are they congruent (b) Write the triangle congruency statement. (c) Give the postulate that makes them congruent.

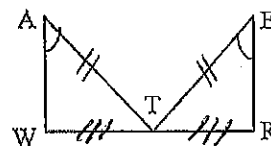


- a. yes
 b. $\triangle ABE \cong \triangle CDE$
 c. ASA

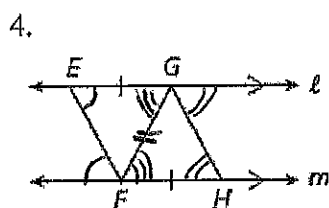


- a. yes
 b. $\triangle OLE \cong \triangle OVE$
 c. SSS

3. Given: T is the midpoint of \overline{WR}

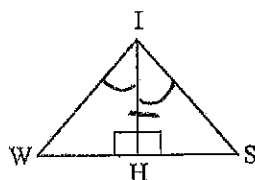


- a. NO
 b. $\triangle ___ \cong \triangle ___$
 c.

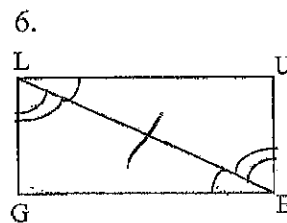


- a. yes
 b. $\triangle EFG \cong \triangle HGF$
 c. SAS

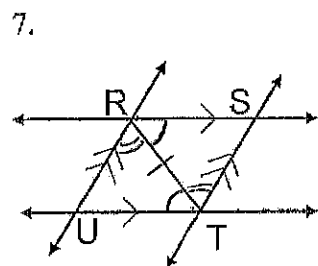
5. Given: \overrightarrow{IH} Bisects $\angle WIS$



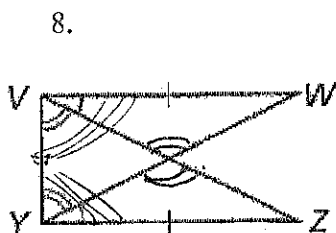
- a. yes
 b. $\triangle WHI \cong \triangle SHI$
 c. ASA



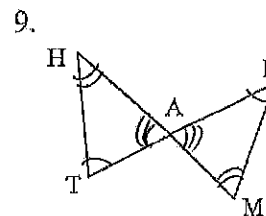
- a. yes
 b. $\triangle LGE \cong \triangle EUL$
 c. ASA



- a. yes
 b. $\triangle RUT \cong \triangle TSR$
 c. ASA

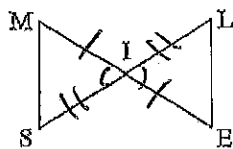


- a. yes
 b. $\triangle WYV \cong \triangle ZYV$
 c. SAS



- a. NO
 b. $\triangle ___ \cong \triangle ___$
 c.

10. Given: I is the midpoint
of \overline{ME} and \overline{SL} .



a. yes

b. $\triangle SIM \cong \triangle LIE$

c. SAS

11.

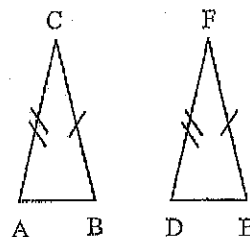


a. yes

b. $\triangle VWX \cong \triangle YXW$

c. HL

12.



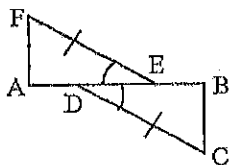
a. No

b. $\triangle \quad \cong \triangle \quad$

c.

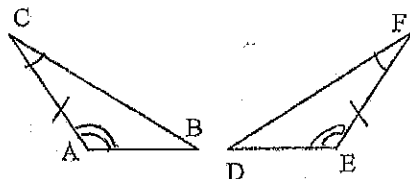
III. Using the given postulate, tell which parts of the pair of triangles should be shown congruent.

1. SAS



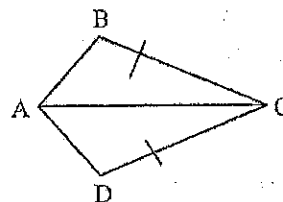
$\overline{AE} \cong \overline{BD}$

2. ASA



$\angle A \cong \angle E$

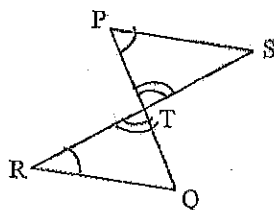
3. SSS



$\overline{AB} \cong \overline{AD}$

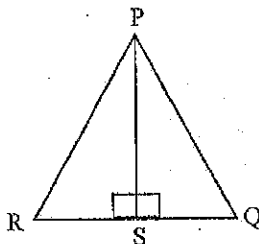
(refl.)

4. AAS



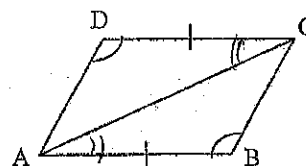
$\overline{TQ} \cong \overline{TP}$
or $\overline{RQ} \cong \overline{PS}$

5. HL



$\overline{RP} \cong \overline{QP}$

6. ASA



$\angle PCA \cong \angle BAC$